M&R
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Traffic noise

State of California
Department of Public Works
Division of Highways
Materials and Research Department

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Our: 100-S-6269

Mr. R. S. J. Pianezzi
Assistant Chief Right-of-Way Agent
Right-of-Way Department
Sacramento, California

Dear Sir:

Submitted in accordance with your request of January 3, 1962, is a report of:

MILLS COLLEGE AND MACARTHUR FREEWAY

AN ESTIMATE OF FUTURE TRAFFIC NOISE

Study by . . . . . Structural Materials Section
Under general direction of . . . . . J. L. Beaton
Measurements and report by . . . . . Louis Bourget

Very truly yours,

F. N. Hveem
Materials and Research Engineer

LB:mw

INTRODUCTION

As requested by the Right-of-Way Department, a study has been made of existing sound levels in the proximity of selected buildings on the Mills College property. These are listed in the order of exposure to the freeway.

Alderwood Hall dormitory. The north end of this building will be about 113 feet from the edge of pavement on the nearest east bound lane.

The Art Gallery. The north end of this building will be about 170 feet from the edge of pavement on the nearest east bound lane.

The Dormitory parallel to Orchard Meadow Road on the campus. The north end of this building will be about 322 feet from the edge of pavement on the nearest east bound lane.

The President's house. The living quarters will be about 373 feet from the edge of pavement on the nearest east bound lane.

The estimate of future traffic noise at these locations is based upon the higher noise levels that presently emanate from typical diesel trucks rather than automobile traffic which usually measures from 10 to 15 decibels lower in value. All present condition measurements and estimates of future truck noise levels are expressed in decibels with the A weighting network, as preferred by most acoustical authorities and recommended by the International Standards Organization. The estimates of future conditions are based upon data accumulated over a period of years by this department and assume no effective improvement in vehicle noise levels.

MEASUREMENTS AND EVALUATIONS

Alderwood Hall (See Figure 1)

The north end of Alderwood Hall (Figure 1, Location A) is nearest to the freeway and therefore most subject to an increase in noise environment.

Present levels vary considerably with prevailing wind conditions, but the noise from the worst of vehicles varies between 60 to 70 dba. However, loud truck noises are infrequent and the typical noise peak from a local city bus is about 65 dba. Future noise peaks from diesel trucks should average about 76 dba with individual variations of plus or minus 4, depending upon the muffler performance. Therefore, peak noise conditions may be expected to increase from 11 to 15 dba above the present conditions, and these peaks will vary with future truck traffic conditions. Peak noise on the sides of the building will rise to a lesser degree or about 6 dba higher than at present. The protected south end of the building will be relatively unaffected in comparison with the rest of the structure.

Art Gallery (See Figure 2)

Present traffic is light and trucks are infrequent. The worst peak noises encountered were from airplanes and a helicopter at 70 to 74 dba. A single passing truck measured 70 dba, and a passing bus measured 63 dba.

Future noise peaks from heavy diesel trucks will average 72 dba.

The walls of this building are of very thick concrete and the penetration of exterior noise is not regarded as serious enough to interfere with the normal activities within the building.

The Dormitory paralleling Orchard Meadow Road

The corner of this building nearest to the freeway is considerably farther away than the other structures so far considered, as shown on Figure 2. Present traffic on Calaveras Avenue is infrequent, but when the noise peaks occur they reach levels of 63 to 66 dba.

The anticipated truck noise peaks from the freeway will average 67 dba. This amount of external noise has not resulted in complaint elsewhere in the State of California.

The President's House

This dwelling is farther away than all other structures under consideration.

The anticipated peak noise levels from trucks at this distance are estimated at 63 to 65 dba, not allowing for some attenuation which should result from the dense stand of tall trees which exist between this house and the freeway. This amount of external noise has not resulted in complaints elsewhere in the State of California.

In summary, the only building likely to be significantly affected by the noise generated from the louder trucks on the freeway is Alderwood Hall. This is a result of proximity and the fact that it is a sleeping area. Truck noises at night are more disturbing by contrast than in the daytime.

FIG. 1